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(54) Title: NOVEL CRISPR-Cas NUCLEASES FROM METAGENOMES

(57) **Abstract:** The present invention relates to a nucleic acid molecule encoding an RNA-guided DNA endonuclease, which is (a) a nucleic acid molecule encoding the RNA-guided DNA endonuclease comprising or consisting of the amino acid sequence of any one of SEQ ID NOs 9, 1 to 5, 7, 8 and 10 to 15; (b) a nucleic acid molecule comprising or consisting of the nucleotide sequence of any one of SEQ ID NOs 24, 16 to 20, 22, 23 and 25 to 30; (c) a nucleic acid molecule encoding a RNA-guided DNA endonuclease the amino acid sequence of which is at least 70% identical to the amino acid sequence of (a), preferably at least 80 % identical, more preferably at least 90% identical, and most preferred at least 95% identical; (d) a nucleic acid molecule comprising or consisting of a nucleotide sequence which is at least 70% identical to the nucleotide sequence of (b), preferably at least 80 % identical, more preferably at least 90% identical, and most preferred at least 95% identical; (e) a nucleic acid molecule which is degenerate with respect to the nucleic acid molecule of (d); or (f) a nucleic acid molecule corresponding to the nucleic acid molecule of any one of (a) to (d) wherein T is replaced by U.



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